

WO 98/48851

PCT/EP98/02527

Claims

1. Process for the production of radioactive stents, characterized in that a non-radioactive stent is immersed in a solution that contains at least one radioactive isotope in ionic form, and the isotope is then chemically deposited on the stent.
2. Process for the production of radioactive stents according to claim 1, wherein the isotope is deposited reductively on the stent.
3. Process for the production of radioactive stents according to claim 2, wherein as a reducing agent, SnCl_2 , KBH_4 , dimethylborane, formaldehyde or sodium hypophosphite is used.
4. Process for the production of radioactive stents according to claim 1, wherein the isotope is deposited on the stent by chemical precipitation.
5. Process for the production of radioactive stents according to claim 4, wherein as a precipitating agent, oxalic acid, oxalate, phosphoric acid, phosphate or Na_2CO_3 is used.
6. Process for the production of radioactive stents according to one of claims 1-5, wherein the radioactive isotope is an isotope of elements Ag, Au, Bi, Co, Cr, Cu, Fe, Gd, Hg, Ho, In, Ir, Lu, Mn, Ni, P, Pb, Pd, Pm, Pt, Re, Rh, Ru, Sc, Sm, Tb, Tc or Y.
7. Process for the production of radioactive stents by chemical precipitation according to claim 4, wherein the metal

stent surface in a radioactive phosphoric acid solution is oxidized anodically.

8. Process for the production of radioactive stents according to one of claims 1-7, wherein several isotopes are deposited on the stent on the surface.

9. Use of radioactive stents, which are produced according to one of the processes of one of claims 1-8, for the production of an implant for restenosis prophylaxis.

10. Radioactive stents, wherein the radioactive isotope is fixed on the surface of the stent by means of at least one adhesive.

11. Radioactive stents, wherein at least one radioactive isotope of elements Ag, Au, Ba, Bi, C, Co, Cr, Cu, Fe, Gd, Hg, Ho, In, Ir, Lu, Mn, Ni, P, Pb, Pd, Pm, Pt, Re, Rh, Ru, S, Sb, Sc, Sm, Tb, Tc or Y is fixed on the surface of the stent by means of at least one adhesive.

12. Radioactive stents according to claim 10 or 11, wherein the adhesive consists of a peptide, a fat or gold in combination with a thiol-group-containing complexing agent.

13. Radioactive stents according to claim 10 or 11, wherein the adhesive consists of a complexing peptide, a complexing fat or gold in combination with a thiol group-containing complexing agent.

14. Radioactive stents according to claim 10, wherein the radioactive isotope is an isotope of elements Ag, Au, Ba, Bi, C, Co, Cr, Cu, Fe, Gd, Hg, Ho, In, Ir, Lu, Mn, Ni, P, Pb, Pd, Pm, Pt, Re, Rh, Ru, S, Sb, Sc, Sm, Tb, Tc or Y.

15. Process for the production of radioactive stents, wherein a radioactive isotope is reacted with an adhesive at 0-100°C, and the stent is then coated with the radiolabeled adhesive at 0°C-100°C.

16. Process for the production of radioactive stents, wherein a non-radioactive stent is coated with the adhesive at 0°C-100°C, and then is mixed at 0-100°C with a solution of the radioactive isotope.

17. Process for the production of radioactive stents, wherein a non-radioactive stent is coated with gold and then is mixed at 0-100°C with a solution of a ³⁵S-labeled thiol compound.

18. Use of stents that consist of stent parent substances, adhesives and a radioactive isotope for the production of an implant for prophylaxis of restenoses.

19. Process for the production of radioactive stents, wherein a non-radioactive stent is immersed in a solution that contains the radioactive isotope in ionic form, and the isotope is then electrochemically deposited on the stent.

20. Process for the production of radioactive stents according to claim 19, wherein the isotope is deposited galvanically on the stent.

21. Process for the production of radioactive stents according to claim 19, wherein the isotope is deposited on the stent by cementation.

22. Process according to at least one of claims 19-21, wherein the radioactive isotope is an isotope of elements Ag, Au,

Bi, Co, Cr, Cu, Fe, Gd, Hg, Ho, In, Ir, Lu, Mn, Ni, Pb, Pd, Pm, Pt, Re, Rh, Ru, Sc, Sm, Tb, Tc or Y.

23. Process for the production of a radioactive stent according to claim 1 or 19, wherein the solution, which contains the radioactive isotope in ionic form, in addition contains hydrochloric acid.

24. Process for the production of radioactive stents according to claim 1 or 19, wherein the stents are treated in another process step with a solution that contains reducing agents and hydroxycarboxylic acids.

25. Process for the production of radioactive stents according to claim 1 or 19, wherein the stents are treated in another process step with a solution that contains alcohols and lipophilic cations.

26. Process for the production of radioactive stents according to claim 23, 24 or 25, wherein the stent is sealed in addition with a polymer.

27. Use of radioactive stents, which are coated with radioactive isotopes on the surface, for the production of an implant for restenosis prophylaxis.